

Measure Up

Spring 2007

Assessment news for fourth-grade teachers



Facts About NAEP 2007

- From January 22 to March 2, 2007, over 400,000 fourth-graders participated in the NAEP reading or mathematics assessment.
- Over 7,700 fourth-grade schools participated.
- Over 5,200 NAEP staff administered the assessment to students in grades 4, 8, and 12 across the country.
- On average, 2,600 schools were assessed nationwide at grades 4, 8, and 12 each week of the assessment period.

Using NAEP in Your Classroom—Science

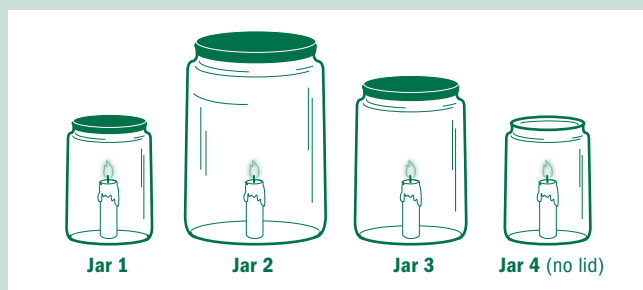
With the publication of NAEP results, select questions from each assessment are released. Teachers can access the questions, answer keys and scoring guides, sample student responses, and national performance results for fourth-grade students using the NAEP Questions Tool at <http://nces.ed.gov/nationsreportcard/itmrls>. The Questions Tool includes both multiple-choice and constructed response questions for all NAEP subjects and grades. Below, read about what two questions from the NAEP 2005 science assessment measured and how they were scored.

The NAEP science framework guides the science assessment. The framework is developed by the National Assessment Governing Board and is available at <http://www.nagb.org>. The framework specifies three fields of science: Physical Science, Earth and Space Sciences, and Life Science. Below, find a diagram and two questions from the Physical Science field.

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Pat set up four different jars with a burning candle in each jar. He put the lids on jars 1, 2, and 3, as shown in the picture below.

1. The candle in jar 1 burned for 2 minutes after the lid was put on. The candle in jar 2 burned for 8 minutes. About how long did the candle in jar 3 burn after the lid was put on?



- A) 1 minute
- B) 4 minutes
- C) 8 minutes
- D) 10 minutes

2. Pat did not put a lid on jar 4. The candle in jar 4 burned for a very long time. Tell why this candle kept burning so much longer than the other candles.

(See sample student responses on page 3)

NAEP—A Wealth of Information



In addition to assessing subject area achievement, NAEP collects background information that provides a context for reporting student performance. As part of most NAEP assessments, questionnaires are completed by the students, teachers, and school administrators. In 2007, the fourth-grade Teacher Questionnaire contained three parts: Background, Education, and Training; Classroom Organization and Instruction—Language Arts; and Classroom Organization and Instruction—Mathematics.

In the first part, teachers are asked about the type of teaching certificate they hold, the number of years they have taught, the highest academic degree they earned, and their major and minors in undergraduate and graduate schools. Additionally, teachers answer questions about professional development activities in which they participated over the past 2 years.

The next two parts ask teachers about the organization of their classroom and instructional practices. These sections include questions about class size, time per week spent on language arts and mathematics instruction, grouping of students for instructional activities, and calculator and computer usage.

In addition to the Teacher Questionnaire, each school selected for NAEP also completes a questionnaire. The principal or assistant principal typically provides the responses to these questions. In 2007, schools provided information about many topics, including the structure of the school, student enrollment, student and teacher absenteeism and transfer percentages, professional development activities, and student groupings for mathematics.

In 2005, similar questions were asked of fourth-grade teachers and school administrators. The box to the left contains data we know based on the background questionnaires. *All NAEP data are reported based on the student. For example, we do not know what percent of teachers have at least a bachelor's degree; rather, we know what percent of students have teachers who hold at least a bachelor's degree.* ■

2005 Grade 4 Teacher Questionnaire Results

Percent of students taught	By teachers who:
42	• had a major in elementary education
44	• held a Master's degree or higher
47	• spent 10 hours or more per week on language arts instruction
15	• spent 7 hours or more per week on mathematics instruction
15	• spent 4 hours or more per week on science instruction
61	• assigned science projects that took a week or more
49	• asked students to answer questions in writing almost every day
72	• participated in improvement efforts within the school
57	• had participated in professional development activities that focused on the reading and writing processes to a large extent
27	• had 20 years or more teaching experience

For more information visit the NAEP Data Explorer at: <http://nces.ed.gov/nationsreportcard/nde>.

Using NAEP in Your Classroom—Science

(Continued from page 1)

The science framework includes three aspects of Knowing and Doing Science: Scientific Investigation, Practical Reasoning and Conceptual Understanding. The first question involved Practical Reasoning which probes students' abilities to use and apply science understanding in new, real-world applications. The second question involved Conceptual Understanding. Conceptual understanding includes the body of scientific knowledge that students draw upon when conducting a scientific investigation or engaging in practical reasoning. These concepts include facts and events the student learns

from both science instruction and experiences with the natural environment. Additionally, scientific concepts, principles, laws, and theories that scientists use to explain and predict observations of the natural world are also considered essential.

For the first question, 50 percent of fourth-graders nationwide chose the correct answer, B. For the second question, 44 percent of fourth-graders gave a complete response; 37 percent gave a partial response; and 17 percent gave an unsatisfactory/incorrect response. Sample student responses are provided below. ■



Sample student responses for question 2

(Continued from page 1)

Complete: Includes a correct explanation referring to the continued supply of oxygen or air.

It burned more than the other candles because it got air.

Partial: Provides an explanation that refers to something specific when there is no lid on the jar, but does not mention oxygen or air.

Because if the lids are on the candle won't burn as long because of the heat locked in. IF there is no lid it doesn't have as much heat.

Unsatisfactory/Incorrect: Provides an incorrect explanation.

Because that candle was taller than all the other candles in the other jars.

- To use released fourth-grade questions in the classroom, teachers should visit <http://nces.ed.gov/nationsreportcard> and select "Sample Questions."
- From there, teachers can select "Search Options" followed by the subject and grade 4. A series of questions will appear, and teachers can review the questions, sample student responses, and performance data for students nationwide and by state.

Did you know?

- The results for the 2007 fourth-grade reading and mathematics assessments are expected to be released in the late fall of 2007.
- You can access released assessment questions and create your own assessments by visiting <http://nces.ed.gov/nationsreportcard/itmrls>.
- There are over 550 released fourth-grade questions in the NAEP Questions Tool online.

If you want to...

Visit...

Learn more about NAEP results

The Nation's Report Card at
<http://nationsreportcard.gov>

View NAEP data for a particular state or contact your NAEP State Coordinator

The National Center for Education Statistics at
<http://nces.ed.gov/nationsreportcard/states>

Access specific results for a grade level, subject, jurisdiction, and/or student groups

The NAEP Data Explorer at
<http://nces.ed.gov/nationsreportcard/nde>

Find information regarding the types of questions used on NAEP assessments or to view subject-specific questions

The NAEP Questions Tool at
<http://nces.ed.gov/nationsreportcard/itmrls>

Download a Sample Questions Booklet that contains sample test questions for NAEP assessments

The National Center for Education Statistics at <http://nces.ed.gov/nationsreportcard/about/booklets.asp>

Learn more about how policy is drafted for each NAEP assessment

The National Assessment Governing Board at
<http://www.nagb.org>

Offer a comment or suggestion on NAEP

The National Center for Education Statistics mailbox at <http://nces.ed.gov/nationsreportcard/contactus.asp>

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